Archaeological Resource Assessment for the Addison Rutland Natural Gas Project Phase 2

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REPORT RECIPIENTS

The Archaeological Resource Assessment Report for the Addison Rutland Natural Gas Project Phase 2 was requested by Vermont Gas Systems, Inc.

DISCLAIMER

Issuance of this report does not signify that the contents necessarily reflect the views of any of the organizations and agencies involved in this project, nor does the mention of trade names or commercial products in the report constitute endorsement or recommendation by the organizations and agencies involved in this project.

REPORT FORMAT

The following report is designed to comply with the Vermont Division for Historic Preservation's *Guidelines for Conducting Archaeology in Vermont*.[1] In accordance with the *Guidelines* this report follows the "Short Report Format" as outlined in Appendix H.

QUESTIONS OR COMMENTS

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ABSTRACT

During the fall of 2013 the Lake Champlain Maritime Museum (LCMM) conducted an Archaeological Resources Assessment (ARA) for the Addison Rutland Natural Gas Project Phase 2. This ARA was designed to address the potential impact of the proposed gas pipeline on any historic underwater cultural resources in the Area of Potential Effect (APE).

This ARA was conducted at the request of Vermont Gas Systems, Inc. in compliance with Section 106 of the National Historic Preservation Act of 1966, and 22 VSA Chapter 14 of the Vermont Historic Preservation Act.

The project area is located on Lake Champlain, between the towns of Shoreham, VT and Ticonderoga, NY. Site research was carried out by LCMM, utilizing primary and secondary archival sources as well as existing archaeological and remote sensing data.

At this time, the Lake Champlain Maritime Museum recommends that no additional archaeological research is necessary prior to the commencement of work on the proposed project area.

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PROJECT LOCATION AND DESCRIPTION

During the fall of 2013, the Lake Champlain Maritime Museum (LCMM) undertook an Archeological Resource Assessment in support of Vermont Gas Systems, Inc.'s plan to install a gas pipeline across Lake Champlain from Shoreham Vermont, to Ticonderoga, New York. The ARA carried out by LCMM focuses on the potential impact to submerged cultural resources that may be present in the project area; the terrestrial study is being carried out by the Consulting Archaeology Program at the University of Vermont.

The overall aim of the Addison Rutland Natural Gas Pipeline Phase 2 is to install a gas pipeline across the lake utilizing directional boring. This technique will allow the pipeline to placed 30ft below the bottom of Lake Champlain.

Figures 1-3 show where the proposed corridor is located and where it will cross Lake Champlain from Shoreham VT to Ticonderoga NY. On the Vermont side of Lake Champlain this corridor is located in the town of Shoreham, Addison County. The proposed corridor will pass just south of Five Mile Point and run generally west to east emerging in Ticonderoga New York between Phelps Rocks and Stony Point. The proposed pipeline corridor is 75ft (22.9m) in width. In order to insure a safe working area around the corridor this study examined an additional "buffer area" that extends 250ft (76.2m) to either side of the corridor.

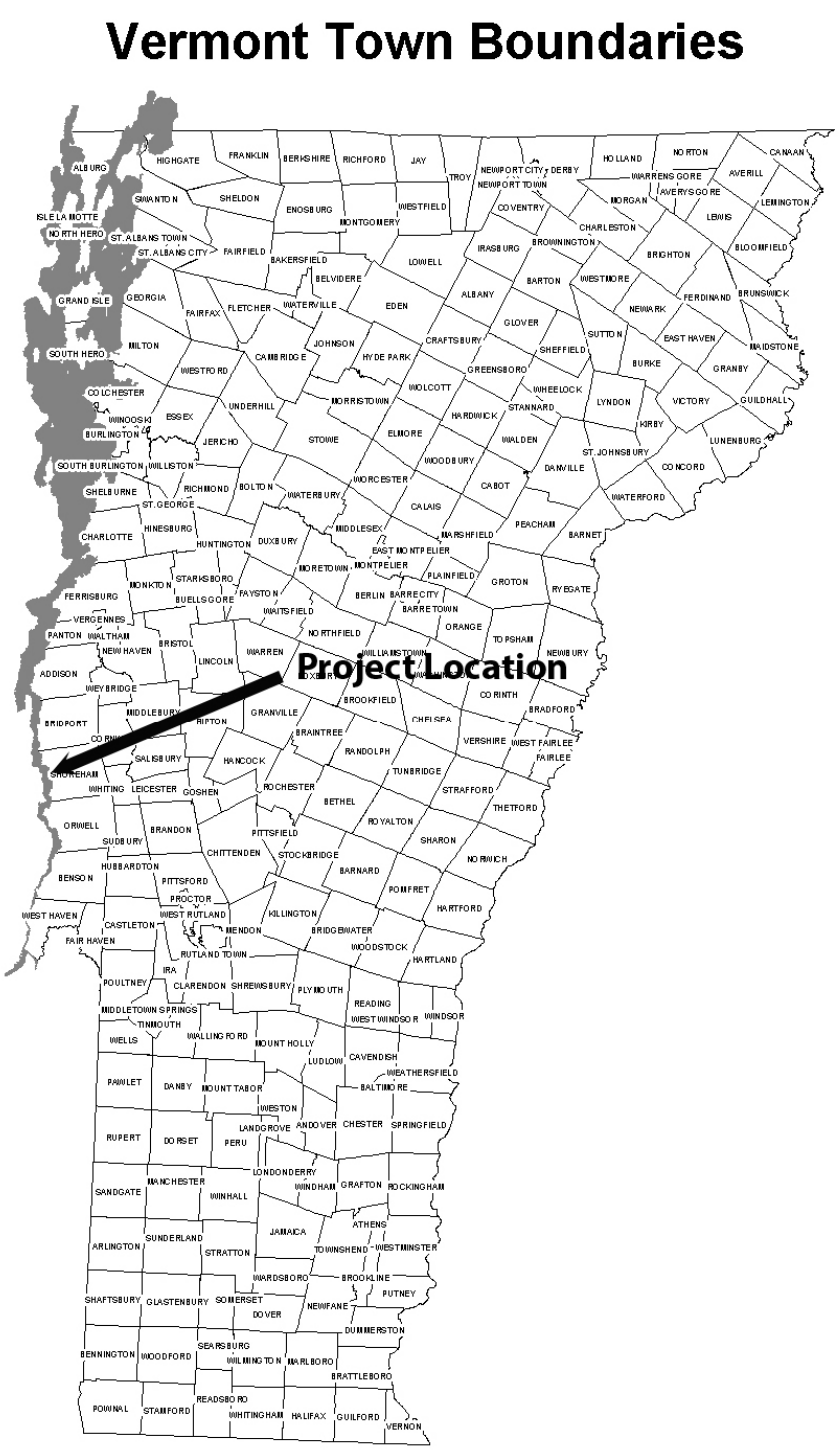

Figure 1: Project Location

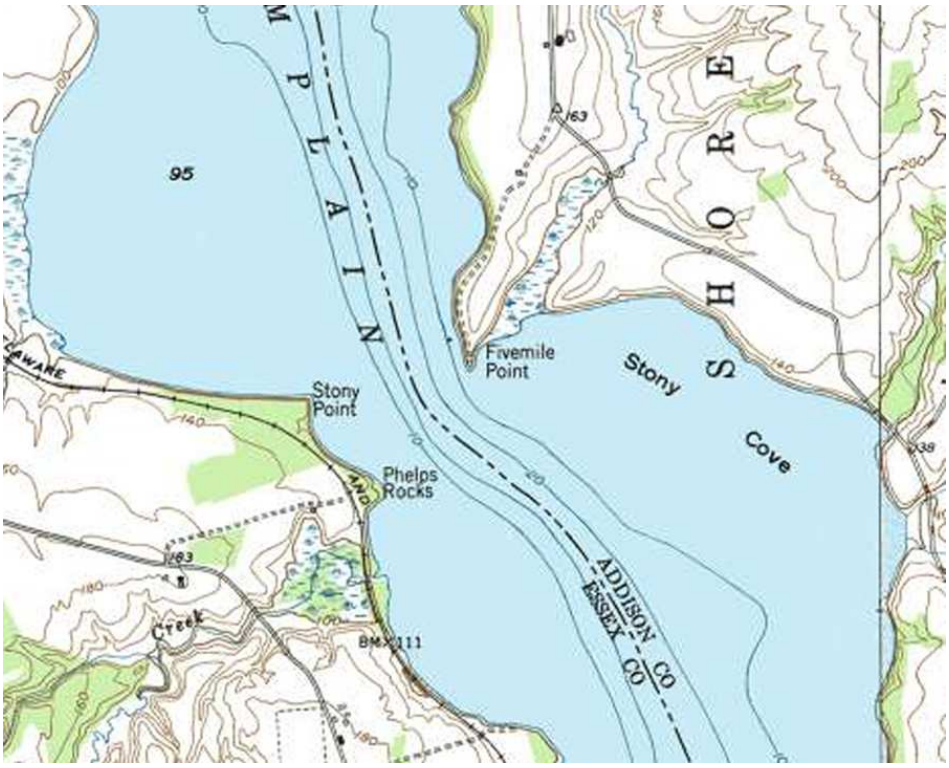

Figure 2: USGS Quad map (Ticonderoga) showing project area.

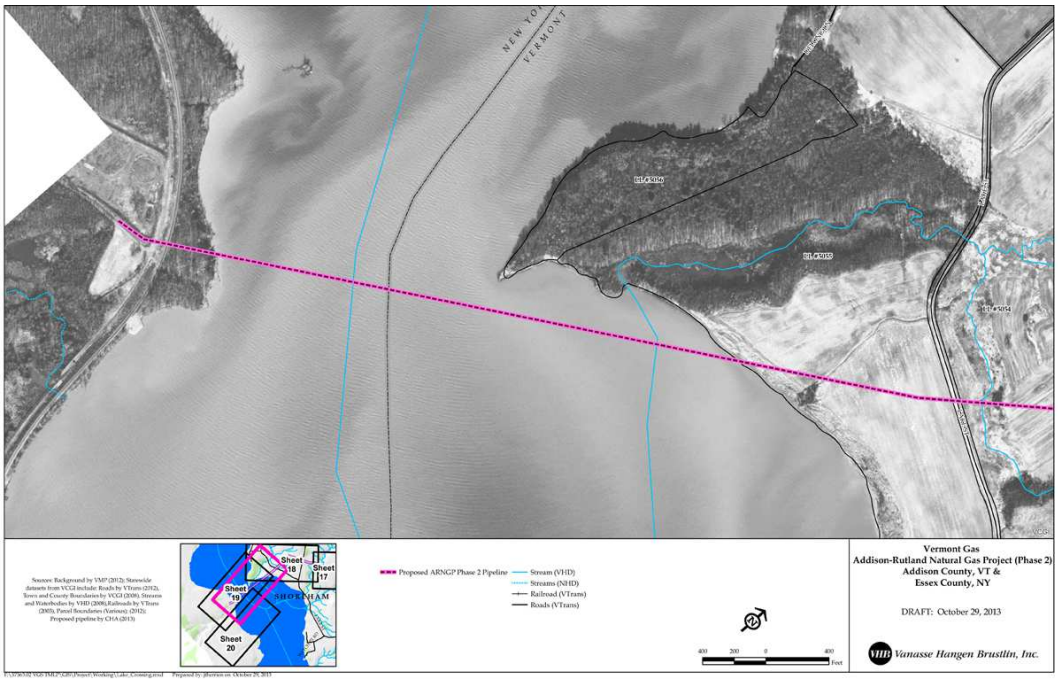

Figure 3: Pipeline Corridor (courtesy of VHB, Inc.)

HISTORIC CONTEXT OF THE SURVEY AREA

LAKE CHAMPLAIN

The maritime history of Lake Champlain can be generally described as four distinct periods: the Native American Occupation & Contact Period (Prehistoric – 1664), the Military Period (1664-1815), the Commercial Period (1823 – 1945), and the Recreational Period (1945- present).

Native American Occupation & Contact Period

The Champlain Valley's cultural history began nearly 11,300 years ago before present (BP), when Paleoindian hunter-gatherer groups moved into the region, which was coincident with the end of the last ice age as the Laurentian ice sheet retreated north. Native Americans have been living in the Champlain Valley continuously from that time to the present. The lake has served as a resource for food, water, tools, spiritual guidance, and transportation. Throughout prehistory, Native Americans lived in small campsites and villages along the lake's shoreline, and employed specific techniques and tools to extract the lake's resources. Vestiges of their occupation sites and lakeside workshops have been discovered throughout the Champlain Valley.

Since its discovery by Europeans, the Champlain Valley has consistently played an important role in North American history. The prominence of this area is due to the north-south corridor that Lake Champlain creates between the St. Lawrence Valley and the heart of the North American continent.

In 1609 the Mahican living in the Hudson Valley came in contact with Dutch explorer Henry Hudson. Shortly thereafter, the Dutch began to trade metal tools to the Mahican in exchange for furs. The Mahican also developed alliances with the French. When the English captured New Amsterdam in 1664, a region which included much of the Mahican's traditional territory, the Mahican were forced to develop alliances with the British. By 1700 the Mahican population had been decreased from an estimated 4,000 to about 500 through European diseases, famine, wars, and political pressures. Many of the Mahican merged with other groups, including the Dutch, the Western Abenaki, the French, and the Mohawk Iroquois. By 1720 the Mahican no longer existed as an organized native tribe in the Champlain and Hudson Valleys. French explorer Samuel de Champlain was the first European to see the lake and valley that now bears his name.

In July 1609 Champlain joined a war party of Algonquin, Huron, and Montagnais who paddled up the lake with twenty-four canoes in search of their enemy the Mohawk Iroquois. Champlain and his war party confronted a group of Mohawk warriors at Ticonderoga, where Champlain killed three Mohawk with his arquebus. Thus were established French allies and enemies that endured for nearly two centuries. For Europeans, one of the important results of Champlain's exploration in the Champlain Valley was the discovery of a nearly complete water route from the St. Lawrence River to the Hudson River (Figure 4). Shortly after Champlain's expedition into the valley, the Dutch explorer Henry Hudson sailed up the river that now bears his name in search of the Northwest Passage. He sailed as far as present-day Albany, New York, and claimed the lands north into the Champlain Valley. Although the French and Dutch did not

initially settle the Champlain Valley, they both had a great interest in the area's natural resources. Both colonial powers were heavily involved in the fur trade and depended upon the Native Americans of the Champlain Valley for their fur supply.

Military Period

French and British Military Conflict (1664-1763)

Between 1664 and 1763, the Champlain Valley witnessed a continuous struggle between the French and British Empires for control of Lake Champlain and its tributaries. These water routes were strategic highways that provided access into the interior of the Northeast in a period when the only viable means of transportation in a rugged land was by water. Expeditions and forts were continually raised in defense of rival claims of the Champlain Valley and its waterways. Armies and war parties transported themselves on Lake Champlain in fleets of canoes, bateaux, radeaux, row galleys, schooners, and sloops. This period came to an end after the French and Indian War (1763), when Britain assumed control of most of France's territorial claims in North America.

Early Settlement (1763-1775)

The only settlement in the Champlain Valley between 1609 and 1755 was that of exiled Northeastern Indians, Jesuit missionaries, French soldiers, and settlers who generally stayed near the forts and outposts. All of these settlements were short-lived, since the threat of renewed warfare always loomed in the future. However, during the years of peace following the French and Indian War, settlements started to appear throughout the Champlain Valley as the colonial governors of both New York and New Hampshire granted large tracts of land. These land grants often conflicted, since both New York and New Hampshire had once claimed jurisdiction over the area between the Connecticut River and Lake Champlain. After an appeal to the British government, it was determined that New York had legitimate claim to the land. New York then tried to force settlers with New Hampshire titles to pay for their land a second time. Those affected sought legal aid, but, when that failed, they organized an illegal militia, the Green Mountain Boys, who kept New York officials off their land.

Mostly landlords settled on the western side of Lake Champlain with tenants to take up and clear the land, then build dams, sawmills, and gristmills in close settlements. Many of the landlords and tenants were former soldiers who had served in the valley and had been given land by the King in return for their military service. The settlers on the eastern side of the lake, however, were generally land speculators or self-made men. The most notorious land speculators were the Allen brothers, Ethan and Ira, of Litchfield, Connecticut. The Allen brothers accumulated thousands of acres of land on the eastern side of the valley through purchases of land grants issued by the governor of New Hampshire.

The settlements on both sides of the lake were very small and widely spread throughout the valley. They were generally close to tributaries of Lake Champlain, which provided the settlers with power and transportation. There were very few roads, so the settlers depended heavily upon small watercraft and rafts to transport themselves and products to the Quebec market. Most settlers were involved in extracting resources from the virgin forests of the Champlain Valley, but their daily lives were soon interrupted by the next military conflict.

Revolutionary War (1775-1783)

After the signing of the Treaty of Paris in 1763 the yoke of British rule seemed increasingly heavy to the self-reliant and restive British colonists in North America. The colonists viewed the increased taxes, perceived limitations of rights, and trade duties levied by their absentee government as tyranny, while the British government considered growing colonial resistance a movement that required vigorous suppression. The leaders of the growing American rebellion grew more vocal in their advocacy of human rights and liberty. The colonies first unified to condemn the Stamp Act of 1765, but they reacted even more quickly to the passage of the Coercive ["Repressive" or "Intolerable"] Acts in 1774, which Parliament had instituted in response to the Boston Tea Party. As King George III informed Prime Minister Lord North in September 1774, "the die is now cast, the colonies must either submit or triumph….We must not retreat; by coolness and remitted pursuit of the measures that have been adopted I trust they will submit." The king's confident wish did not come true.

On the evening of April 18, 1775, the inevitable finally occurred when British troops marched out of Boston to seize patriot supplies in nearby Concord, Massachusetts. The next morning, shots were fired in neighboring Lexington, Massachusetts that left eight Americans dead on the town green. Further volleys were exchanged at Concord, and American militiamen hotly pursued the British force on its retreat to Boston. By nightfall of April 19, patriot militias had taken up arms in the call for resistance and encircled British-held Boston. The British attempt to discourage the "rude rabble without plan" with a display of force had instead led to open conflict.

From the outset, rebel leaders knew that they must expel the besieged British garrison in Boston, but such an undertaking was impossible without heavy artillery. Such weaponry was at that time completely unavailable to colonial militias. However, cannon were known to be in ample supply at the weakly-manned British forts at both Ticonderoga and Crown Point on Lake Champlain. The Americans immediately devised plans to seize the guns and bring them to Boston.

Once again Lake Champlain became a critical strategic arena. If the Americans could capture the lake's forts, they would gain not only cannons but also control of the lake. They would then command the most direct invasion route to British Canada. On the other hand, if the British maintained their presence on Lake Champlain, then geography would favor their endeavors, allowing them to divide New England and the remaining colonies and conquer them piecemeal.

Challenge to British Rule

On May 10, 1775, three weeks after the engagements at Lexington and Concord, the Americans undertook their first offensive action against the British on Lake Champlain.

Early in May 1775, Connecticut authorized Ethan Allen and two hundred Green Mountain Boys to attack Fort Ticonderoga and capture its cannon for the siege of Boston. Fort Ticonderoga and Crown Point were both lightly garrisoned and in severe disrepair. On the eve of the planned attack, Benedict Arnold arrived with a colonel's commission and orders from the Massachusetts Committee of Safety, bent on the same mission. After a heated dispute between the two leaders

to determine who was in charge of the attacking party, Arnold and Allen finally agreed to share the command. In the early-morning hours of May 10, they entered the fort "side by side" with a force of 81 and took the sleeping garrison by surprise.

Along with Fort Ticonderoga, Allen and Arnold quickly captured the fort at Crown Point in May 1775. At the southern end of the lake, the Loyalist settlement of Skenesborough (present-day Whitehall), New York, fell to the Americans as well. At Skenesborough, the Americans seized Philip Skene's schooner *Katherine*, the first vessel to be captured in the war and the first designated warship of the rebellious colonies. In his journal, Lieutenant Eleazar Oswald noted the event: "We set sail from Skenesborough in a schooner belonging to Major Philip Skene, which we christened *Liberty*."

After a disastrous attempt to invade Canada in 1775 and the subsequent retreat of American forces from that attack up Lake Champlain both sides focused on attempting to control the vital transportation route that the lake provided. To this end both side set about to build a fleet of vessels. The Americans had captured and armed four vessels in 1775: *Liberty*, *Enterprise*, *Royal Savage*, and *Revenge*. This small fleet gave the Americans the upper hand on Lake Champlain and prevented the British army from advancing south. Throughout the summer of 1776, American and British forces at opposite ends of the lake worked furiously to assemble naval squadrons.

The southern lake town of Skenesborough was chosen for the construction of the American vessels, and, an ironworks to supply the shipyard. In just over two months, the American shipbuilding effort produced one small galley constructed from timbers captured at St. Johns, eight new 54ft (16.5m) gondolas (or gunboats), and four 72ft (22m) row galleys. Each completed hull was rowed to Fort Ticonderoga where it was out fitted with masts, rigging, guns, and supplies. By early October 1776, the American fleet numbered 16 vessels.

By the autumn of 1776, the American navy on Lake Champlain was a combined fleet of captured and newly built ships. Under the command of General Benedict Arnold, the fleet was manned by volunteers and troops drafted from the Northern Army.

The British fleet on Lake Champlain was constructed for two purposes: to overcome the American fleet then patrolling the lake, and to escort and protect the army that was preparing to invade the colonies. The larger vessels were manned by Royal Navy officers and seamen from the St. Lawrence naval and transport ships, and the gunboats were manned by British and Hessian artillerymen. These professional forces were far superior to the untrained novices aboard the American fleet. Captain Pringle commanded from the deck of Maria, and General Carleton accompanied him on the same vessel.

Battle of Lake Champlain

The two fleets met on the western side of Valcour Island on October 11, 1776. The American fleet, commanded by Arnold, consisted of eight gondolas, three row galleys, two schooners, one sloop, one cutter and bateaux. The vessels in the British fleet were not only larger with better

sailing characteristics, but they were also crewed by professional sailors under the command of skilled naval officers.

Arnold picked the location for the battle. Lying about halfway between Crown Point and St. John's, Valcour Island provided the American fleet with both a natural defensive position and relief from the increasingly blustery autumn weather. Arnold's vessels sheltered to the west of the island, knowing that the British fleet would sail past on the east side. The Americans were both outgunned and outmanned in seamanship, and they hoped that the British vessels would have difficulty beating back against the wind after spotting the American line at anchor.

On the morning of October 11, the British ships sailed past the southern end of Valcour Island, then turned north against the wind. For the next several hours the British and American vessels engaged in an intense battle. Fortunately for the outmatched Americans, most of the large British vessels were unable to work far enough against the wind to engage them. Instead, the bulk of the fighting that day was undertaken by British gunboats that rowed within musket range of the American line. Both sides sustained significant casualties, and the American schooner *Royal Savage*, one of Arnold's largest vessels, ran aground on the southwestern corner of Valcour Island.

The battle halted at nightfall, and one hour after the fighting stopped the gunboat *Philadelphia* sank from damage suffered in the exchange of cannon fire. At dusk, Arnold called a council of war, and the American officers agreed to attempt an escape by rowing past the British line. The British burned *Royal Savage* which provided a distraction on the eastern side of the inlet and the American fleet rowed south to safety along the New York shoreline with oars muffled and a shrouded light in each vessel's stern. Remarkably, the fleet passed the British undetected, and by morning they reached Schuyler Island and halted to stop their leaks and mend their sails. Arnold had abandoned two weakened gunboats, *Spitfire* and *Jersey*, during the flight.

As Arnold and his fleet recovered at Schuyler Island, the sun rose over a British fleet that expected to complete a rapid and decisive victory. They were mortified to discover that the Americans had slipped past their blockade and they hastily set off in pursuit. As the British moved south, they overtook and captured the abandoned gunboat *Jersey*, while *Spitfire* had already sunk.

The weary American crews, struggling against a southerly wind, rowed for their lives. On the morning of October 13, near Split Rock Mountain, the fresh British fleet caught up with the vessels that were straggling at the end of the American line. The British surrounded the row galley *Washington*, which was forced to surrender after taking several broadsides. The British pressed on in a running gun battle that threatened the row galley *Congress* and four lagging gunboats. Arnold, who was commanding *Congress*, ordered his men to run the five vessels aground in Ferris Bay, near Panton, Vermont. He and his marines ascended the bank and blew up the ships with their flags still flying to deny them to the British. Arnold, the ships' crews, and the local residents of Panton narrowly escaped overland to Fort Ticonderoga and Mount Independence.

The British were now in firm control of the waterway, while the Americans counted themselves fortunate still to have six ships afloat, four of which had participated in the fighting. Now relying on land fortifications at Fort Ticonderoga and Mount Independence, the Americans anticipated an imminent attack and called on the militia to confront the British army. The British, however, could not immediately follow up on their naval successes, since contrary lake winds prevented a rapid advance. When the winds finally cooperated and the British disembarked in sight of the fortifications, they realized that a long siege was in order. Facing the prompt onset of winter, Carleton decided that the campaign season of 1776 was at an end. With surprise and relief, the Americans learned in early November that the British had abandoned Crown Point and returned to Canada for the winter.

During the winter of 1776-1777, the Americans reduced their garrisons on Lake Champlain from nearly 13,000 to 2,500 men. Lieutenant Colonel Jeduthan Baldwin, a Massachusetts engineer, was entrusted with further strengthening the fortifications before the spring offensive. On the Vermont shore the Americans had carved a large-scale fortification out of a 300-acre (121.5 hectares) peninsula jutting northwards into the lake. Named Mount Independence, it featured a water battery, protective batteries, and a picket fort atop its highest height. Baldwin's troops lacked sufficient food and supplies for winter, but they used the ice as a platform to construct a massive "Great Bridge" across the lake, linking Fort Ticonderoga and Mount Independence.

In the spring of 1777, 8,000 British troops under the command of General John Burgoyne began the invasion of the Champlain Valley. They reached Ticonderoga and Mount Independence in late June, and at once began to haul cannon to the top of nearby, undefended, Mount Defiance, which overlooked the American fortifications. Burgoyne had discovered the Achilles Heel of the two forts. The Americans under General Arthur St. Clair had no choice but to evacuate their positions in the middle of the night on July 5 and 6.

The easy British success was short-lived. After chasing part of the fleeing American army to Skenesborough, and fighting with the American rear guard at Hubbardton, Burgoyne chose to proceed south overland through 26mi (42km) of swampy woodland. The retreating Americans destroyed supplies, felled trees, and burned bridges to slow the invaders. In August, a substantial British force in search of supplies suffered a crushing defeat at the Battle of Bennington. Burgoyne finally encountered the American Northern Army entrenched on Bemis Heights, 20mi (32km) north of his intended destination of Albany. His first serious battle with the Americans, the First Battle of Freeman's Farm, on September 19, further weakened British strength and morale.

On October 7, at the Second Battle of Freeman's Farm, while Gates occupied Bemis Heights, Arnold led a charge that rallied the American troops, and Burgoyne's once-proud army suffered its final defeat. With his options waning, and his escape route to the northward cut off by flanking Americans, General John Burgoyne was forced to surrender his army. Burgoyne's surrender at Saratoga on October 17, 1777 is generally regarded as the turning point in the war. The collapse of the British army along the Champlain-Hudson waterway encouraged France to enter the war as an American ally. More than five years would pass before peace was

concluded, but it was now obvious that the British would be unable to hold the interior of the American continent.

Settlement and Commercialization (1783-1812)

From 1775 to 1791, Vermont operated as an independent republic on the eastern side of Lake Champlain, while the western side of the lake was under the jurisdiction of New York. The population of the Champlain Valley, only a few hundred in the years following the American Revolution, exploded to approximately 143,000 people by 1810. Business entrepreneurs, land speculators, and individuals yearning for a new start quickly began to move into the valley. The large stands of virgin timber were the easiest and most profitable way to make money, and the dozens of streams and rivers in the valley attracted the development of sawmills. The trees were cut into logs, milled into building materials, burned to make potash, pearl ash, and charcoal, or processed to make tar, pitch, and mineral spirits. Towns with manufacturing centers also began to develop along the lakeshore. As the population increased, the commodities heading for Canada diversified to include furs, hides, beef, pork, fish, wheat, cheese, horses, grain, pig iron, tobacco, wool, and paper.

Although some privately built merchant vessels had appeared on the lake before the Revolutionary War, commercial navigation did not begin in earnest until the 1780s, as thousands of settlers, most of them from New England and New York, moved into the Champlain Valley to exploit the region's abundant natural resources. Rafts and small vessels including canoes, barges, scows, sloops, bateaux, whaleboats, and longboats moved much of the material due to the lack of good roads. Champlain Valley products were exchanged for cash, salt, and manufactured goods at the markets in Quebec.

After the Revolutionary War, the United States government made a determined effort to stand clear of European conflict while expanding its economic base through peaceful and honest trade without alliances. This approach worked effectively until the renewal of the Napoleonic Wars in 1803, when the fledgling nation became trapped between the two unfriendly superpowers of France and England. For two years, American commerce actually benefited from the conflict, including the Champlain Valley, which continued its exports to Canada. As a neutral party to the Napoleonic Wars, America experienced enormous growth in international trade, becoming the world's largest neutral carrier and the chief supplier of food to Europe. Both Britain and France resented America's neutral trading, however, and a series of confrontations with both belligerent countries soon began. Provoked by the harassment, President Thomas Jefferson called for an embargo in 1807 that essentially forbade all foreign trade. The disastrous effects of the embargo for the U.S. led to the passage of the Non-Intercourse Act of 1809, which permitted trade with all nations except Britain and France.

Champlain Valley residents depended heavily upon the trade with Canada, so most of the valley residents ignored the embargo acts and traded openly with Canada until the United States government began to rigorously enforce the laws by posting customs agents on the lake. Wharves were purposely built astride the boundary, so that Americans could unload their goods in the United States, and Canadians, out of reach of U.S. Customs, could reload the material on boats docked in Canada. Throughout the embargo and prior to the War of 1812, the Champlain Valley's Canadian trade continued and increased dramatically despite the

government's prohibition. When the Non-Intercourse Act expired in 1810, trade was reopened with Britain and France as long as each country withdrew its restrictions on American shipping. France lifted its maritime restrictions, but Britain stalled long enough that America declared war in July of 1812.

War of 1812 (1812-1815)

American plans for the War of 1812 included gaining control of Lake Champlain and the Great Lakes. To that end, Lieutenant Thomas Macdonough was charged with the organization of the U.S. naval fleet on Lake Champlain. This fleet already had two vessels; the navy had built two 40-ton row galleys in 1808 to stop smuggling with Canada. As the army and navy began to assemble their forces in the Champlain Valley, the War Department acquired six sloops. The navy acted primarily as a transport for troops and supplies between the army bases in Plattsburgh and Burlington. The American fleet was then stationed in Shelburne Bay for the winter, where they made repairs and modifications to the vessels.

The first actual engagement between the two opposing navies took place in the channel of the Richelieu River on July 3, 1813. The American sloops *Growler* and *Eagle*, each with 11 guns, mistakenly sailed too far into the river channel and became trapped by three British gunboats and troops along the shore. The American vessels were captured, repaired, and renamed *Broke* and *Shannon*.

In June 1813 Macdonough received permission to purchase the necessary vessels, men, material, and munitions to keep control of the lake. He purchased the *Montgomery* and the 50-ton merchant sloop *Rising Sun*, which was renamed *Preble*. He also rented the sloops *Francis* and *Wasp*. On July 24 Macdonough was promoted to master commandant of the small but growing lake fleet. On July 29, the British departed from Isle-aux-Noix for Plattsburgh with 1,000 men, Broke, Shannon, three gunboats, and more than 40 bateaux. The British raided Plattsburgh, Point au Roche, Swanton, Chazy, and Champlain and burned an arsenal, blockhouses, warehouses, barracks, and a hospital. They also looted a number of private homes and captured or burned a number of privately owned vessels.

On December 21, 1813, Macdonough brought his fleet 7mi (11.3km) up Otter Creek to Vergennes, Vermont, for winter quarters. Vergennes was chosen in anticipation of a major shipbuilding program scheduled to begin in early 1814. The navy's instructions for Macdonough were to increase the size of the fleet dramatically. Vergennes was not only surrounded by stands of oak and pine, but it also had a waterfall that powered a host of industries including eight forges, two furnaces, a wire factory, a rolling mill, gristmills, and sawmills. A shipyard was also already in operation below the falls. Vergennes also had one of the most developed iron industries in the region, which processed bog iron ore from Monkton, Vermont. Vergennes not only had secure access to the lake but was also located on a major road through the Champlain Valley.

At Vergennes, shipwrights built six 70-ton row galleys, each armed with one 24-pounder cannon, and one 18-pounder cannon named *Allen, Borer, Burrows, Centipede, Nettle,* and *Viper*. During the late spring, the 26-gun ship *Saratoga*, which had a length of 143ft (43.6m) and width

of 36ft (11.0m) was built in an amazing 40 days. They also converted a steamboat hull partly constructed at Vergennes into the schooner *Ticonderoga*. The 120ft (36.6m) vessel with a beam of approximately 26ft (7.9m) mounted with 17 guns taken from the two small sloops *Francis* and *Wasp*. The British were also enlarging their fleet during the spring of 1814, busily constructing the 16-gun, 82ft (25.0m) brig *Linnet* (VT-RU-0317) at their shipyard at St. Jean.

The American fleet spent most of the summer patrolling and escorting bateaux between Plattsburgh and Burlington with troops and supplies. On August 11, 1814, the last American vessel, the 120ft (36.6m) brig *Eagle*, was launched in 19 days. On August 25, the frigate *Confiance* was launched. The 831-ton square-rigged, three-masted ship was 146ft (44.5m) long on the gun deck and had a beam of 36ft (11.0m).

The two fleets finally met in Cumberland Bay on September 11, 1814. Macdonough positioned the American vessels inside the bay to permit the American fleet to use its short-range guns more effectively in the inevitable battle. Macdonough's strategy for engaging the British was very similar to that used at Valcour Bay by Benedict Arnold in 1776. Macdonough positioned his fleet in a north-south line inside the bay with an intricate anchoring system rigged with spring lines. This system allowed the American vessels to be turned end-to-end to bring fresh guns on the opposite side of the ship to bear on the enemy should the guns on the original side become disabled.

The two fleets were nearly matched in size and firepower, although the British had greater weight in long-range guns. Command of the British fleet was given to Captain George Downie only days before the battle, leaving him to take command of his new crew in unfamiliar waters. Both fleets had crews consisting of trained seaman and inexperienced land troops; none of the crews, however, were prepared for the devastating battle that was about to begin. The battle raged for two hours and twenty minutes with deafening cannon and musket fire and resulted in a high number of causalities. Thanks in part to their spring lines the American fleet ultimately defeated the Royal Navy, and the British army withdrew its artillery from the New York shore and returned to Canada.

After the Treaty of Ghent was signed on Christmas Eve of 1814, there was little need for the naval fleet on Lake Champlain. Most were brought to Whitehall at the southern end of the lake and laid up in ordinary. The vessels were then stripped of their masts, guns, sails, and naval stores in early March 1815. Some of the vessels were sold for commercial trade on the lake, while the remaining vessels were destroyed or moved up the Poultney River and abandoned.

Searching for a New Market (1815-1823)

The War of 1812 had expanded commercial ties with businessmen in the Hudson Valley, and post-war British tariffs on imports to Canada prevented Canadian markets from once again monopolizing the Champlain Valley's trade. The lack of a navigable waterway to the Hudson River continued to impede trade to the south. Stagecoaches and wagon trains connecting the valleys could accommodate people and small amounts of goods, but bulky, heavy cargoes such as timber, potash, iron, and other raw materials were still without an economical means of

transportation. Because of this effective commercial barrier, the population of the Champlain Valley increased only a small amount following the War of 1812.

The Champlain Valley desperately needed canals to connect directly to Canadian or New York markets so that bulk cargoes could be easily and cheaply transported to market. With renewed interest in expanding the Champlain Valley's markets and exports, enthusiasm for building these canals gained momentum. Both canals had been suggested and researched during the Revolutionary War, but at that time such an effort was an insurmountable project for any single, independent company. This transportation barrier was resolved in 1817, when the legislature of New York resolved to build two commercial waterways, the Champlain and Erie Canals, through the interior of upper New York. The Champlain or Northern Canal would extend for 64mi (103.0km) between Whitehall and Waterford, New York, which meant that an artificial channel 46.5 mi (74.8km) long had to be excavated. With tremendous fanfare the Champlain Canal opened in 1823, and its impact on the Champlain Valley's development and history was profound. The trade that had previously occurred predominately with Canada changed directions almost overnight.

Commercial Period

The opening of the Champlain Canal fundamentally affected the economic development of the Champlain Valley. Extractive industries, particularly timber cutting, stone quarrying, and iron mining, experienced a surge of activity as entrepreneurs hastened to take advantage of the new unrestricted domestic market for their products. Agricultural surpluses of apples, potatoes, grain, butter, cheese, and other semi-perishables could be shipped quickly and inexpensively to urban centers along the Eastern Seaboard. The Champlain Canal also provided residents of Vermont and northeastern New York with manufactured goods and raw materials that had previously cost a great deal to ship overland or import from Canada. The year 1823 marked the end of the Champlain Valley's relative isolation from the outside world and its entry into the national economy. The number and types of vessels that passed over Lake Champlain's waters greatly increased after 1823. The canal's shallow channels, low bridges, and narrow locks were too restrictive for nearly all of the existing lake merchant craft, so large numbers of long, narrow, shallow-draft boats were constructed for canal service. Three types of canal vessels were employed during the early years of the canal: standard canal boats, sailing canal boats, and packets. All of these craft were towed through the canal by teams of mules or horses. By 1833, there were 232 cargo- and passenger-carrying canal boats registered at towns along Lake Champlain and the canal. Shipyards that specialized in the building of standard canal boats and packets appeared in the southern portion of Lake Champlain and at towns along the Champlain Canal. Shipbuilders at the northern end of the lake occasionally constructed sloop- or schooner-rigged canal boats that could sail up to Whitehall, unstep their masts, raise a centerboard or leeboards, and pass through the canal.

The use of the sailing canal boat increased after 1841, when Burlington businessmen Timothy Follett and John Bradley formed the Merchants Lake Boat Line. The practice of transferring cargoes from lake craft to standard canal boats had long been recognized as inefficient due to delay, expense and damage to freight. Follett and Bradley thus chose to use sailing canal boats in their fleet to avoid unnecessary handling. Their vessels were sloop-rigged with centerboards, and the profitability of their line soon forced other shippers to switch to similar boats.

The effect of the sailing canal boat on other types of merchant craft was considerable. The construction of sloops and schooners declined very rapidly after 1842, and those that remained in service were relegated to secondary roles such as carrying stone, lumber, and other bulky cargoes between lake ports. In order to compete with the sailing canal boats, owners of standard canal boat lines also dispensed with the unnecessary freight handling by building steam tugboats for canal service and a different style of tugboat for lake service. The elimination of trans-shipment at each end of the Champlain Canal lowered freight rates and increased the profitability of bulk cargoes.

The opening of the canal also proved beneficial to steam navigation on Lake Champlain. The steamer *Vermont*, completed in 1809, was the world's second commercial steamer and the first steamer on Lake Champlain. The vessel survived the economic and military hazards of the War of 1812, but it sank in the Richelieu River in 1815 when its crankshaft disconnected and punched a hole through the bottom of the hull. This early experiment with steam navigation was, however, still considered a success, and the loss of Vermont did not interrupt steamer passenger service for long. A new steamboat called *Phoenix* (VT-CH-0587), measuring 44.5 m (146 ft) in length with a 45-hp steam engine, replaced the *Vermont*. *Phoenix* and the other steamers that followed operated successful and lucrative services on Lake Champlain. By the 1830s one steamboat company in particular, the Champlain Transportation Company (CTC), began to take the lead over its competitors. The CTC began purchasing the passenger steamers of other companies or acquiring the companies outright. Finally, in January 1835, the CTC acquired a monopoly on Lake Champlain steamboat ferry service, which it maintained until the end of the steamer era.

Small cross-lake ferryboats were also an important part of Lake Champlain's commercial traffic throughout the nineteenth century. From 1825 onward, steam ferries dominated long-distance crossings, but most of the short-distance crossings continued to be served by sail or sweep-propelled scows. In the late 1820s, a trend of horse-powered ferries swept the lake, and a number of these innovative craft were put into service at medium-distance crossings. By 1848, however, all of these vessels had been replaced with other watercraft types.

The opening of the Chambly Canal around the rapids of the Richelieu River in 1843 also boosted the economy of the Champlain Valley. The new waterway opened a direct passage to interior trade markets and allowed merchants to ship goods between the Great Lakes, the Eastern Seaboard, and the St. Lawrence Valley without trans-shipment.

Railroad Development (1848-1875)

The idea of connecting Lake Champlain with the Atlantic Ocean by rail was first conceived in the 1830s. In 1848 a railroad was completed that connected the Hudson and Champlain Valleys. This railroad foreshadowed the dramatic effect railways would have on Lake Champlain's shipping and passenger service. The prospect of connecting the Champlain Valley to the Atlantic Ocean became reality in 1849 with the completion of a rail line from Boston to Burlington, Vermont.

The railroad industry developed very quickly in the Northeast. The earliest railroads crossed upstate New York and Vermont on their way from Canadian and Great Lakes cities to the warm water ports on the Eastern Seaboard. By 1853, the Champlain Valley was connected by rail to Montreal, Boston, Albany, and New York City. The early railroad years seemed to create more business for the lake vessels, but it soon became clear that they would ultimately appropriate nearly all business. Once railroad spurs were constructed throughout the Champlain Valley and the reliability of trains increased, the price of shipping by rail dropped dramatically and seriously competed with lake commerce. Railroads also offered a year-round transportation alternative, something that Lake Champlain could not provide.

The railroads reduced the work of vessels on Lake Champlain to moving cheap and heavy freight and tourists. Hauling cheap Canadian timber for growing American cities proved to be a staple for lake shipping for the rest of the nineteenth century, and ferry companies still provided the fastest and easiest service around the Champlain Valley. Steamboats of all sizes and functions were built and operated on the lake during the mid-nineteenth century in attempts to speed transportation on the lake and to make it more economical. These steamboats originally complemented the services of many of the sailing craft but eventually dominated the longer ferry crossings throughout the lake.

Decline of Lake Commerce (1874-1945)

One of the most negative effects on Lake Champlain commerce resulted from the construction of a rail line on the western shore of Lake Champlain. Many vessels operating on the lake had depended upon the transport of bulky cargoes of iron ore mined in the Adirondack Mountains. Once railroad tracks ran along the western shoreline, they were able to capture almost all of the iron ore traffic, simply as a matter of economics.

The new rail line also rendered the need for passenger steamers on Lake Champlain unnecessary. Passenger steamers continued to operate on the lake until the middle of the twentieth century, but they were no longer an essential part of the Champlain Valley's transportation network. The 1870s marked a rapid decline in all types of commercial sailing craft on Lake Champlain. With a few exceptions, the production of commercial sailing craft ceased in the 1870s, and a substantial number of the existing canal sloops and schooners were dismasted and converted into standard towed canal boats. An increasing number of steam tugs made towing a faster and more effective means of moving cargo around the lake. The expanding rail system also served a greater number of the northern lake towns, drawing away the freight that had previously supported the sailing craft.

Lake Champlain commerce survived into the middle of the twentieth century by carrying bulky cargoes within the Champlain Valley and bringing fuel oil, kerosene, and gasoline to the largest lake towns and cities. In an effort to stimulate lake commerce and activity on the Champlain

Canal, the State of New York decided to enlarge the lock size to accommodate larger vessels by 1916. The state wrongly assumed that enlarging the size of the vessels would reduce the cost of shipment, thus providing an incentive to use water transportation instead of railroads. The new lock dimensions, however, exceeded the practical size for a shallow-draft wooden vessel. Commercial wooden ships had largely become obsolete by the 1920s, when wooden shipbuilding yielded to the construction of iron or steel vessels.

The use of ferries also eventually declined, primarily as a result of bridge construction. In 1929 the Champlain Bridge, the first permanent highway bridge to span Lake Champlain, was constructed between Crown Point, New York, and Chimney Point, Vermont. The second highway to cross the lake, from Rouses Point, New York, to Swanton, Vermont, was completed in 1938. This causeway required the construction of two bridges, the Rouses Point Bridge and the Missisquoi Bay Bridge. By 1945, bridges connected almost all of the Champlain Islands, and the roads around Lake Champlain had been vastly improved. The automobile, introduced to the region at the turn of the century, eventually replaced the horse and carriage and became the most popular way to transport goods and passengers throughout the Champlain Valley. Even tourists abandoned the lake's excursion vessels and embraced the automobile as the easiest way to explore and move about the area. As the number of automobiles increased, the demand for better roads and bridges took precedence over the lake's commercial fleet.

Recreational Period

Lake Champlain had become a tourist attraction even after the Revolutionary War, but the primary use of the lake did not become recreational until after World War II (1941-1945). At that time the only commercial vessels that remained on the lake were car ferries and a small number of steel barges and diesel tugs. The solid economic footing of many Champlain Valley residents allowed them to purchase small pleasure boats following World War II. The development of reliable outboard motors for these small craft allowed almost anyone to purchase a small runabout for recreational use on Lake Champlain. The number of public beaches also increased, as well as the number of beachgoers.

As more lakeshore property was purchased and developed for recreational use, concern for Lake Champlain's water quality and health increased. A number of federal, state, and local ecological organizations were created to monitor and study the lake's environment. Towns and cities conducted studies on how they should develop their waterfronts in an effort to revitalize local economies. Many of these projects never progressed beyond the drawing board, but others have succeeded in recent years.

Appreciation for Lake Champlain's environmental and historical value has dramatically increased over the past two decades. Public school programs are beginning to emphasize the Champlain Valley's historic role in regional, national, and international affairs. Citizens are more concerned about the health and preservation of the lake's natural and cultural resources. A number of museums and historic sites dedicated to interpreting Lake Champlain's natural and cultural history have opened in recent years to fulfill the public's desire to learn more about the area's past. Dozens of studies concerning the lake's resources have been undertaken with public support to preserve Lake Champlain.

PREVIOUS ARCHAEOLOGY

Very little active archaeology has taken place previously at the location of the Addison Rutland Natural Gas Pipeline Phase 2 corridor but the wider area has seen a considerable amount of work in previous years.

LAKE CHAMPLAIN UNDERWATER CULTURAL RESOURCES SURVEY (LCUCRS)

From 1996 until 2006 the LCMM in conjunction with Middlebury College performed a side scan sonar survey that looked at the entire bottom of Lake Champlain in United States Water. This enormous effort revealed the location of nearly 300 shipwrecks as well as providing a much more detailed look at lake bathometry than had been achieved before.

The area around the proposed pipeline corridor was examined during the 2003 season of the LCUCRS. During the survey a large number of sonar targets were identified and ones that appeared to be cultural in nature were later verified by archaeological divers. The data set generated during the LCUCRS was used extensively in assessing the presence or absence of cultural resources within the proposed pipeline crossing project area.[2]

Of the sites discovered during the LCUCRS those closest to the Addison Rutland Natural Gas Pipeline Phase 2 corridor are Wreck Q4 to the north and Wreck YYY to the South.

Wreck Q4 is a poorly preserved canal boat first located in 1984 by the Champlain Maritime Society during a side scan sonar survey; its 1984 designation was LC84-20. The site which lies in Vermont waters, was relocated during the 2003 Lake Survey and verified in July 2004.[3] The wreck is broken-up and largely buried. Some bow and stern frames protrude 2 to 3ft (.6 to .9m) from the bottom, but otherwise very little of the vessel is visible. The condition of the wreck may indicate that it was dynamited in order to make the wreck less of a navigational hazard; a likely scenario given its location in the middle of the navigable channel. This site is more than 5 miles (8km) distant from the proposed pipeline corridor.

Wreck YYY Wreck YYY is a well-preserved canal boat initially located by the Champlain Maritime Society during a side scan sonar survey in 1984; its 1984 designation was LC84-19. The site, which lies in Vermont waters, was relocated during the 2003 Lake Survey and verified by archaeological divers in July 2004.[4] This wreck is a largely buried, but intact mid-nineteenth century canal boat. The stern projects 3 to 4ft (.9-1.2km) above the bottom, descending from there forward until all remains are buried at 72ft (21.9m) forward of the rudderpost. Subsequent to the verification dive examination of the sonar image indicated that a small portion of the bow may also be exposed above the sediments. This observation has yet to be confirmed. The vessel has a beam of 14ft 1in (4.3m), which, based on the known expansions of the Champlain Canal locks, indicates that the vessel was constructed between 1858 and 1872. A canal boat of this class should have an overall length of approximately 88ft (26.8m). With the exception of the stern, the exposed remains consist largely of the gunwales and hatch coamings. The wreck is preserved up to deck level. Wreck YYY's only major absent structural components are the cabin trunk and roof, as well as the decking in the stern. This site is located approximately 1.75 miles (2.8km) from the proposed pipeline corridor.

OTHER NEARBY ARCHAEOLOGICAL PROJECTS

The area around Fort Ticonderoga has been the site of a number of underwater archaeological projects in previous years. The remains of the Great Bridge that connected Fort Ticonderoga to Mount Independence during the Revolutionary War was carefully recorded and partially excavated in 1993 by team from LCMM and Texas A&M University.[5] In very close proximity to the Fort itself, the Sloop *Boscawen*, which dates to the French and Indian War, was excavated and thoroughly documented in 1983 and 1984.[6] An extensive artifact collection was recovered during this project at it is now housed at For Ticonderoga.

METHODOLOGY

ARCHIVAL RESEARCH

Researching the general historical background of Lake Champlain, specifically for the region around Shoreham, VT and Ticonderoga, NY was a major focus of this assessment. It was important to know what events occurred in the area in order to better understand the historic features that might be encountered. Research into maritime activities on Lake Champlain in the Shoreham, VT and Ticonderoga, NY areas was conducted in local and regional archives, municipal records, and newspapers.

REMOTE SENSING DATA

In addition to archival research, a careful study was conducted of the available remote sensing data for this area captured during the 2003 LCMM Lake Champlain Underwater Cultural Resources Survey (LCUCRS).

The LCUCRS collected side-scan sonar data for the entirety of the American portion of Lake Champlain, between 1996-2006. Sonar targets that were deemed to be potentially culturally significant were verified by archaeological divers following the survey. These records are housed in the archives of the Lake Champlain Maritime Museum's Maritime Research Institute.

To ensure thorough coverage all sonar targets were revaluated and reassessed to determine if there was any possibility that they represented submerged cultural resources.

ARCHAEOLOGICAL SITE FILE RESEARCH

Researchers examined state archaeological site files in both New York and Vermont to determine if there might be any nearby sites that would also have an in water component.

RESULTS OF INVESTIGATION

RECOMMENDATIONS

After a careful examination of the existing remote sensing data, historical documentation, and state archaeological site files, no evidence of historic submerged cultural resources have been found within the proposed project area. **Based on these facts the LCMM recommends that no further underwater archaeological study is necessary prior to the installation of the gas pipeline along the designated corridor.**

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